IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Abhay S. Kant et al.	§	Group Art Unit:	2863
Serial No.: 10/720,817	§	Examiner:	Lau, Tung S.
Filed: November 24, 2003	§		
For: METHOD AND APPARATUS FOR DETECTING RUB IN A TURBOMACHINE	§	Atty. Docket:	133918-1/SWA GERD:0332

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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37 C.F.R. 1.8

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date below.

June 19, 2006 [signature]
Date

Sir:

DECLARATION OF ABHAY SUDHAKARRAO KANT UNDER 37 C.F.R. § 1.131

I, Abhay Sudhakarrao Kant, hereby declare as follows:

1. I am a co-inventor of record of the above-referenced application.

2. My residence address is set forth below, along with my signature.

3. We conceived the subject matter disclosed and claimed in the above-referenced application in the United States, a NAFTA country, or a WTO country at least prior to September 30, 2002. This conception is evidenced by slides 1, 2, 5, 9, and 14 of a PowerPoint presentation relating to "Modified Algorithms based on feed back received form review meeting," as indicated by slide 1. These slides generally illustrate and describe systems and methods for monitoring operational parameters of a turbomachine (e.g., on site) via various sensors, identifying anomalies in data received from sensors, and detecting possible rub events.

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4. We actually reduced to practice the subject matter disclosed and claimed in the above-referenced application in the United States, a NAFTA country, or a WTO country at least prior to September 30, 2002. This actual reduction to practice is also evidenced by the Excel graph labeled "Desk Top validation results," which records successful completion and testing of a prototype of the method and system set forth and claimed in the referenced application at least prior to September 30, 2002. Specifically, the Excel graph represents data collected while monitoring the operation of a turbomachine, and indicates anomalies that correspond to possible rub events in the turbomachine. The Excel graph illustrates variation in speed relative to time and four different alarms indicative of a possible rub event. The Excel graph was prepared at least prior to September 30, 2002. A true and redacted copy of this Excel graph is attached hereto as Exhibit B.

I declare further that all statements made herein are of my own knowledge, are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001, and that such willful false

statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Dated: 06/15/2006 By: Abhay Sudhakarrao Kant

Abhay Sudhakarrao Kant

Declarant's Full Name: Abhay Sudhakarrao Kant

Country of Citizenship: India

Residence Address: 35, 1st Main, Domlur Layout, Domlur Bangalore, Karnataka, India 560071

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June 19, 2006
Date

Sir:

DECLARATION OF VIVEK VENUGOPAL BADAMI UNDER 37 C.F.R. § 1.131

I, Vivek Venugopal Badami, hereby declare as follows:

1. I am a co-inventor of record of the above-referenced application.

2. My residence address is set forth below, along with my signature.

3. We conceived the subject matter disclosed and claimed in the above-referenced application in the United States, a NAFTA country, or a WTO country at least prior to September 30, 2002. This conception is evidenced by slides 1, 2, 5, 9, and 14 of a PowerPoint presentation relating to "Modified Algorithms based on feed back received form review meeting," as indicated by slide 1. These slides generally illustrate and describe systems and methods for monitoring operational parameters of a turbomachine (e.g., on site) via various sensors, identifying anomalies in data received from sensors, and detecting possible rub events.

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statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Dated: 6/15/06 By: Vivek Venugopal Badami.

Vivek Venugopal Badami

Declarant's Full Name: Vivek Venugopal Badami

Country of Citizenship: India

Residence Address: 731 Huntingdon Drive, Schenectady, NY 12309

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June 19, 2006 [signature]
Date

Sir:

DECLARATION OF JOSEPH ROBERT TOTH UNDER 37 C.F.R. § 1.131

I, Joseph Robert Toth, hereby declare as follows:

1. I am a co-inventor of record of the above-referenced application.

2. My residence address is set forth below, along with my signature.

3. We conceived the subject matter disclosed and claimed in the above-referenced application in the United States, a NAFTA country, or a WTO country at least prior to September 30, 2002. This conception is evidenced by slides 1, 2, 5, 9, and 14 of a PowerPoint presentation relating to "Modified Algorithms based on feed back received form review meeting," as indicated by slide 1. These slides generally illustrate and describe systems and methods for monitoring operational parameters of a turbomachine (e.g., on site) via various sensors, identifying anomalies in data received from sensors, and detecting possible rub events.

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statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Dated: 6/15/06 By: Joseph Robert Toth
Joseph Robert Toth

Declarant's Full Name: Joseph Robert Toth

Country of Citizenship: USA

Residence Address: 314 Morning Glory Trail, Powder Springs, GA 30127

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June 19, 2006 Danielle Ha
Date

Sir:

DECLARATION OF NICHOLAS GIANNAKOPOULOS UNDER 37 C.F.R. § 1.131

I, Nicholas Giannakopoulos, hereby declare as follows:

1. I am a co-inventor of record of the above-referenced application.

2. My residence address is set forth below, along with my signature.

3. We conceived the subject matter disclosed and claimed in the above-referenced application in the United States, a NAFTA country, or a WTO country at least prior to September 30, 2002. This conception is evidenced by slides 1, 2, 5, 9, and 14 of a PowerPoint presentation relating to "Modified Algorithms based on feed back received form review meeting," as indicated by slide 1. These slides generally illustrate and describe systems and methods for monitoring operational parameters of a turbomachine (e.g., on site) via various sensors, identifying anomalies in data received from sensors, and detecting possible rub events.

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statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Dated: 6/15/2006 By: Nicholas Giannakopoulos

Nicholas Giannakopoulos

Declarant's Full Name: Nicholas Giannakopoulos

Country of Citizenship: USA

Residence Address: 3694 Autumn View Drive, Acworth, GA 30101

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June 19, 2006 [signature]
Date

Sir:

DECLARATION OF MARK M. DIMOND UNDER 37 C.F.R. § 1.131

I, Mark M. Dimond, hereby declare as follows:

1. I am a co-inventor of record of the above-referenced application.

2. My residence address is set forth below, along with my signature.

3. We conceived the subject matter disclosed and claimed in the above-referenced application in the United States, a NAFTA country, or a WTO country at least prior to September 30, 2002. This conception is evidenced by slides 1, 2, 5, 9, and 14 of a PowerPoint presentation relating to "Modified Algorithms based on feed back received form review meeting," as indicated by slide 1. These slides generally illustrate and describe systems and methods for monitoring operational parameters of a turbomachine (e.g., on site) via various sensors, identifying anomalies in data received from sensors, and detecting possible rub events.

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statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Dated: 19 June 06 By: Mark M. Dimond

Mark M. Dimond

Declarant's Full Name: Mark M. Dimond

Country of Citizenship: USA

Residence Address: 5868 Sundance Ct., Jupiter, FL 33458

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June 19 2006
Date

Sir:

DECLARATION OF JITENDRA KUMAR UNDER 37 C.F.R. § 1.131

I, Jitendra Kumar, hereby declare as follows:

1. I am a co-inventor of record of the above-referenced application.

2. My residence address is set forth below, along with my signature.

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statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Dated: 06/14/06 By: Jitendra Kumar

Jitendra Kumar

Declarant's Full Name: Jitendra Kumar

Country of Citizenship: India

Residence Address: 2475 Brookshire Dr., Apt. #27, Niskayuna, NY 12309

EXHIBIT A

Modified Algorithms based on feed back received from review meeting [redacted]

[redacted]

Major modifications carried out in:

8.6.76 High Differential Expansion along with High Vibration	Sheet: 2
8.6.71 Rotor locks in and vibrates at its first critical	Sheet: 3
8.6.61 High eccentricity following vibration excursion.	Sheet: 4 & 5
8.6.73 High response to 1st critical	Sheet: 6 & 7

Minor or No Modifications in:

8.6.77 Sudden large shell temperature ramp	Sheet: 8 & 9
8.6.67 Different speed/vibration map for run up vs. coast down	Sheet: 10 & 11
8.6. 74 High response to 2nd critical	Sheet: 12
8.6.64 Unsteady or sporadic overall vibration with LP overall vibration affected with Load, back Pressure, Hood Temp	Sheet : 13

[redacted]

EXHIBIT A

8.6.76 High Differential Expansion along with High Vibration

Priority HH

(This calculation shall be performed during Start-up and Shut down modes of the unit.)

1. Monitor alarm for 'Differential Expansion High' to raise an anomaly.
2. Monitor bearing vibration.
3. Calculate actual variation in vibration values.
4. If abnormal amplitude or abnormal variation is observed, and this is observed for 3 consecutive samples, then raise an anomaly.'High/ Abnormal VibrationOnBBXX'
5. If both these conditions are appearing, then raise an anomaly 'AbnormalVibWithAbnormalDiffExpansion'.

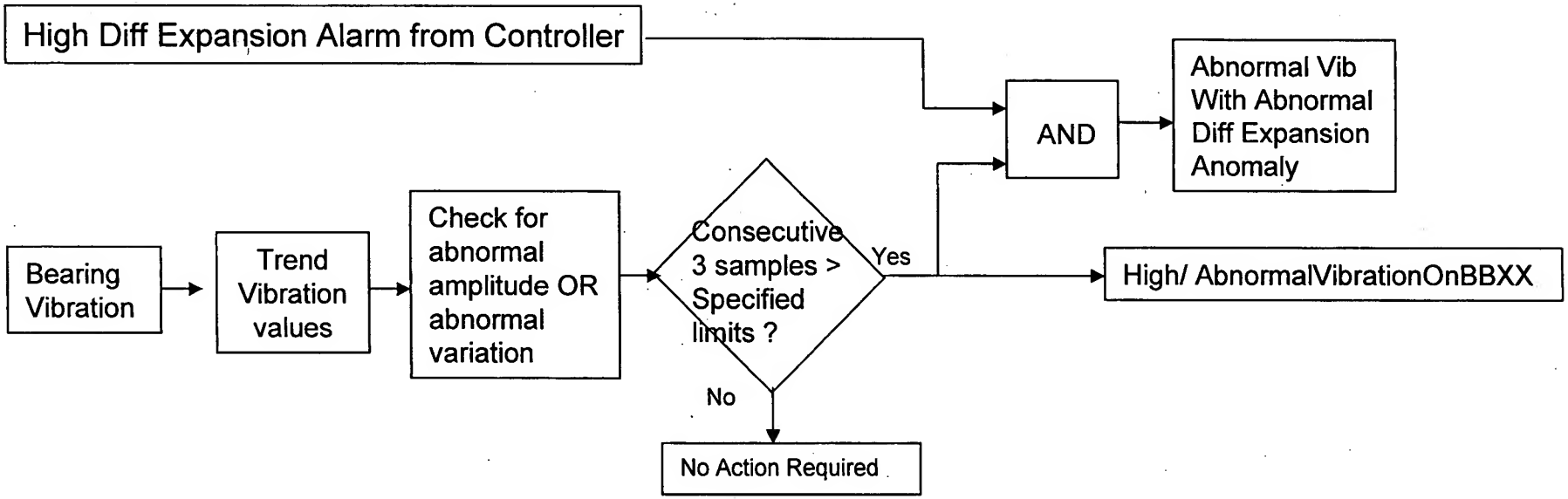
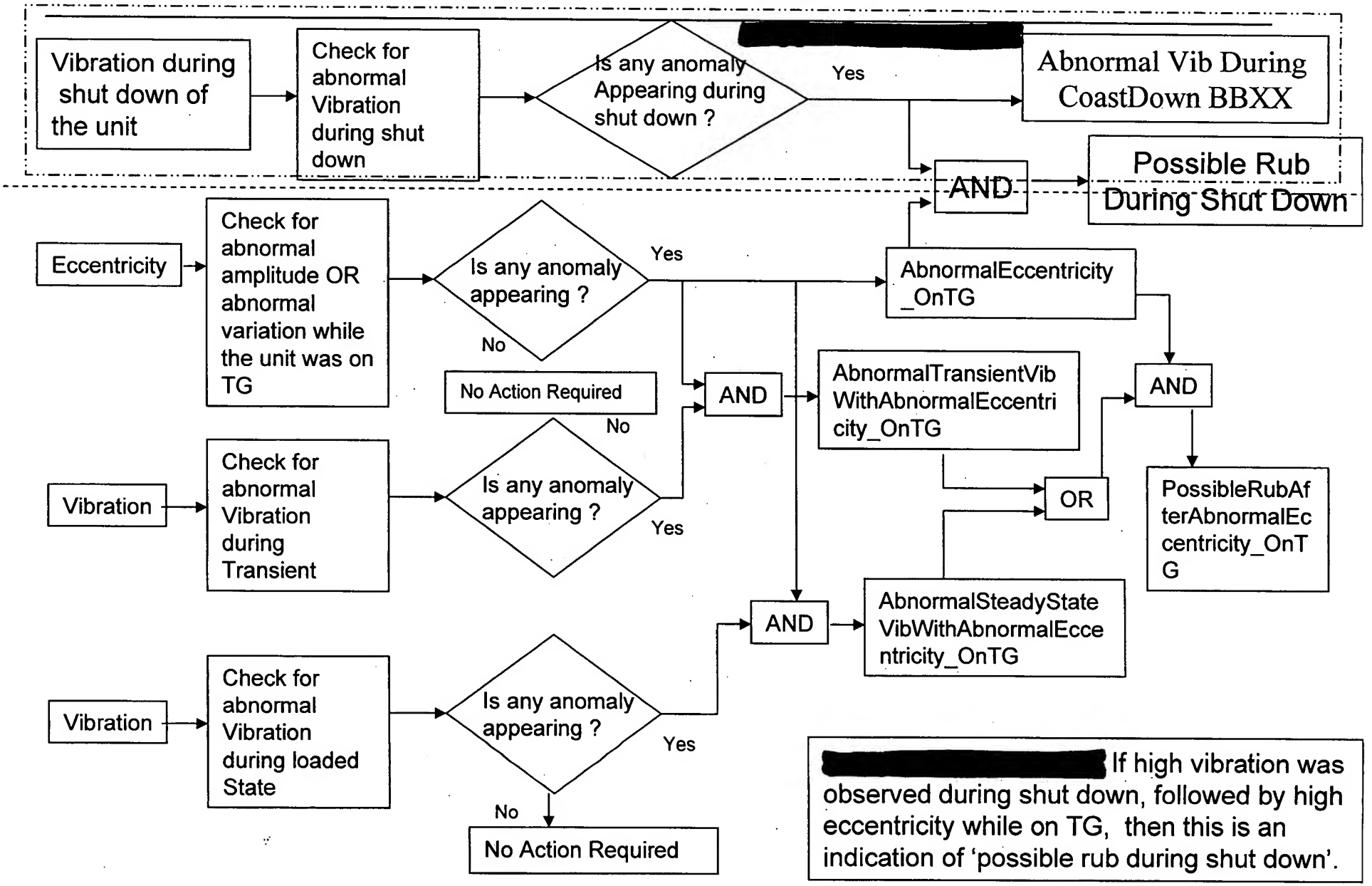


EXHIBIT A

8.6.61 High eccentricity following vibration excursion.

Priority: H



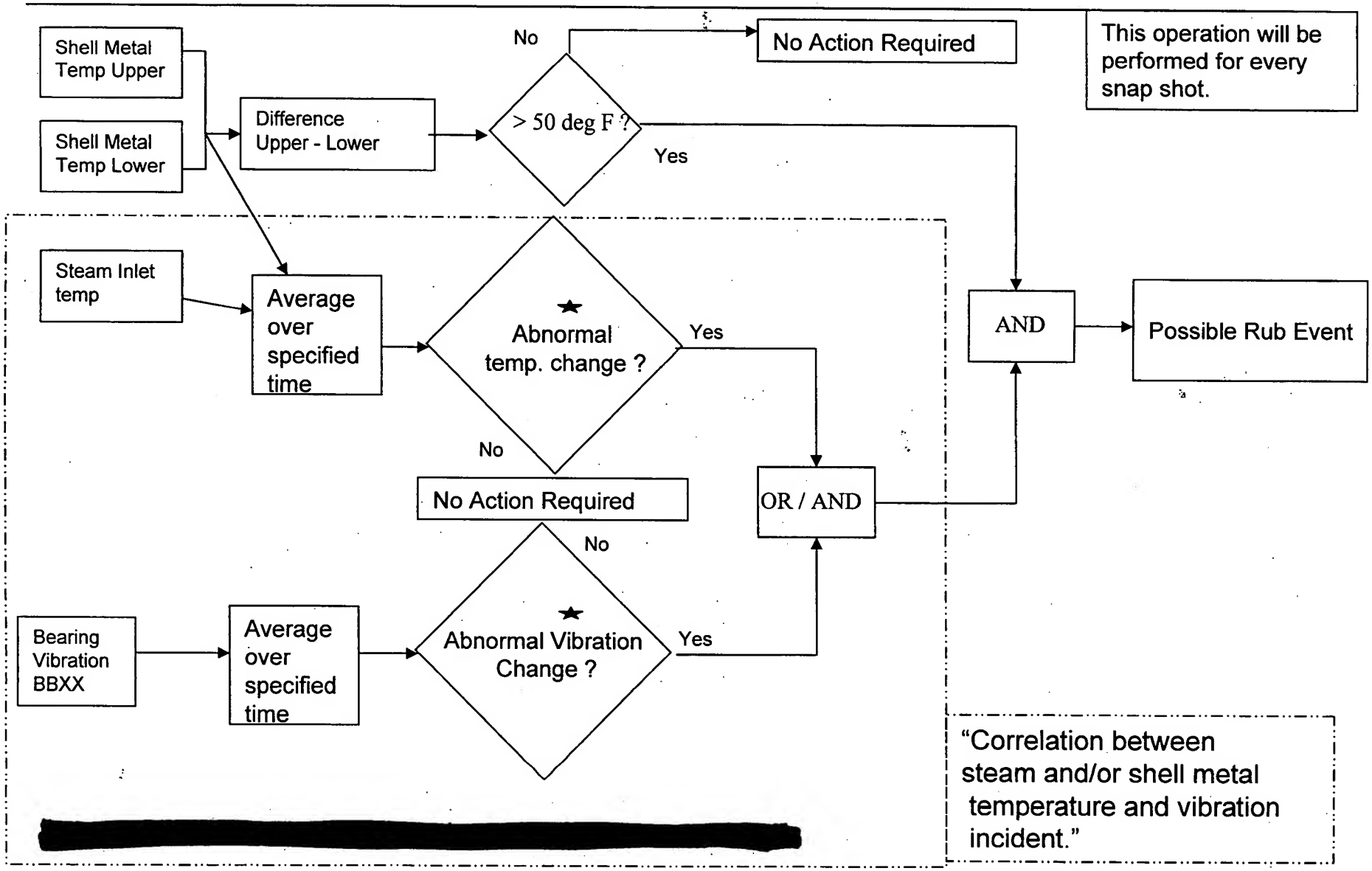
[redacted] If high vibration was observed during shut down, followed by high eccentricity while on TG, then this is an indication of 'possible rub during shut down'.

[redacted]

EXHIBIT A

Priority: HH

8.6.77 Sudden large shell temperature ramp

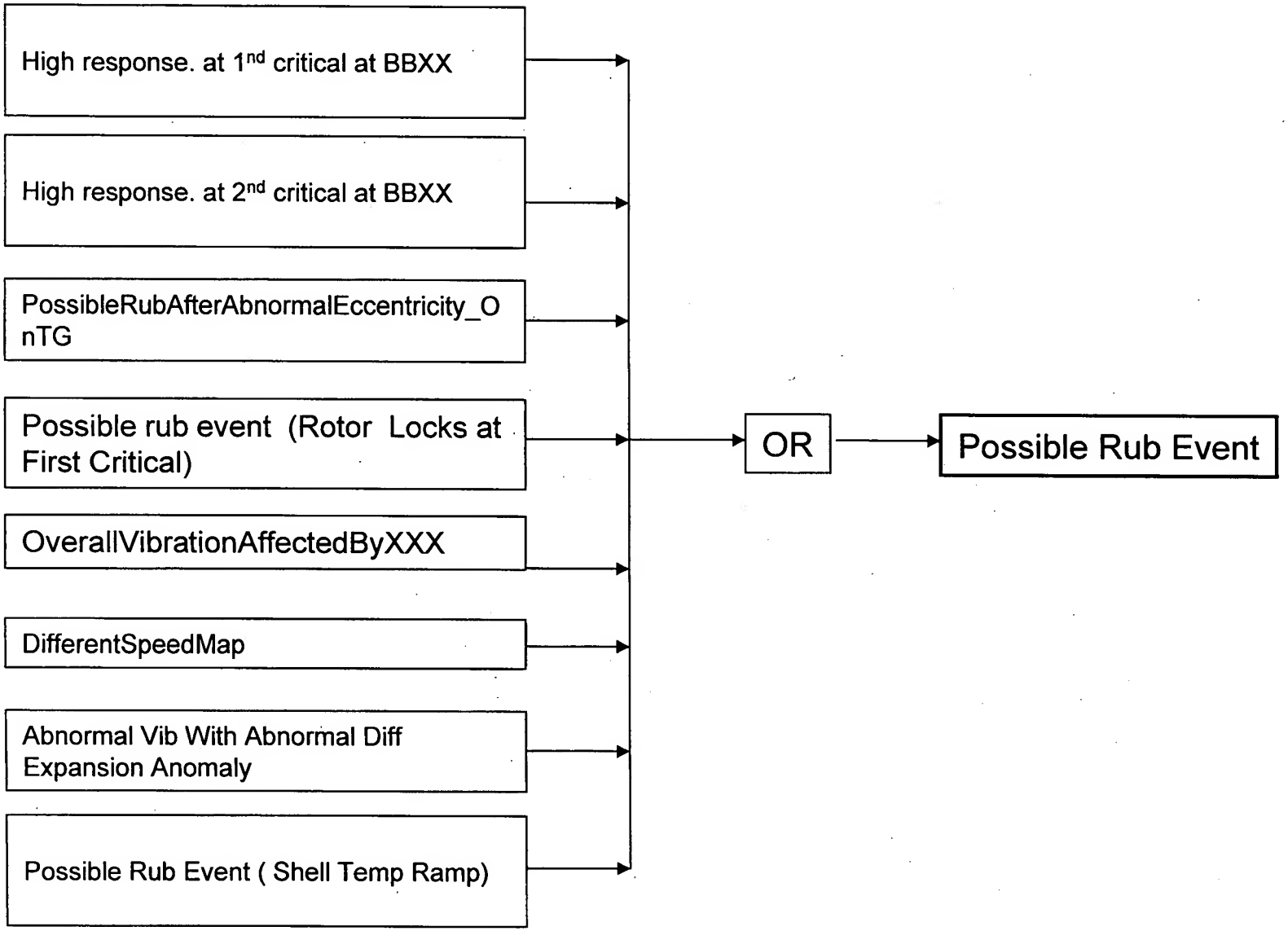


★ Abnormal change is defined as: '*Larger than specified*' change in amplitude over specified time period (10 seconds) OR amplitude exceedence over specified limits.

[redacted]

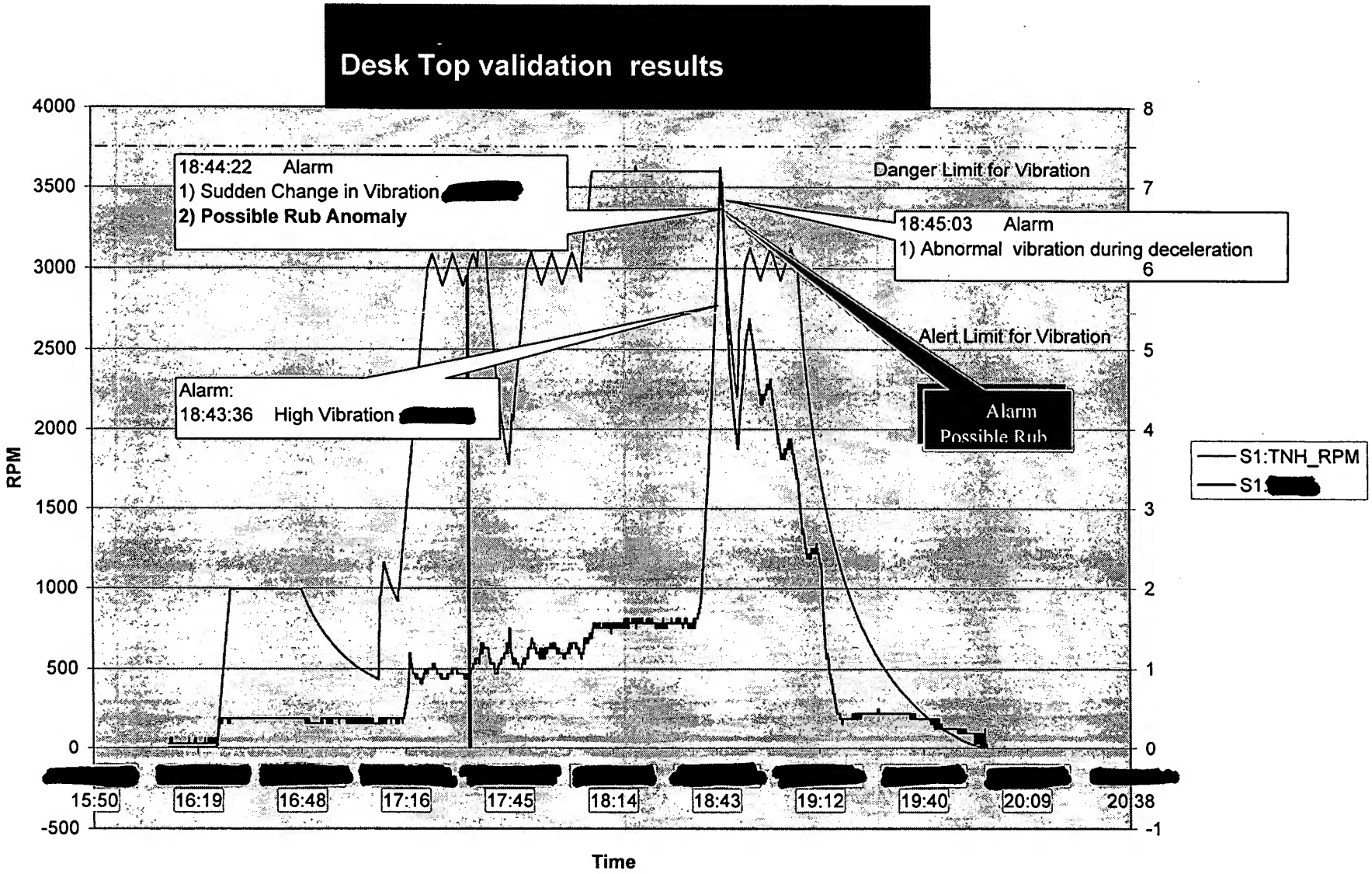
EXHIBIT A

Rub Anomaly Flow Down



[redacted]

EXHIBIT B



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